

CLAIMS:

1. Centrifuge, particularly a separator, comprising a centrifugal basket (28) having a basket shell (1) which is provided with at least one or more solids discharge nozzles (2), characterized in that in each case at least one wear protection device is arranged and/or constructed on the basket shell (1) in the area of the solids discharge nozzles (12).
2. Centrifuge, particularly a separator, according to Claim 1, characterized in that the centrifugal basket (28) has a vertical axis of rotation and a single-cone or double-cone construction.
3. Separator according to Claim 1 or 2, characterized in that the solids discharge nozzles (2) in the area of the largest diameter of the centrifugal basket (19) are inserted into the latter from the outside.
4. Centrifuge, particularly a separator, according to Claim 1, 2, or 3, characterized in that the wear protection devices are constructed as wear protection elements (12).
5. Centrifuge, particularly a separator, according to one of the preceding claims, characterized in that - viewed against the rotating direction - one of the wear protection elements (12) is arranged behind each discharge nozzle (2).
6. Centrifuge, particularly a separator, according to one of the preceding claims, characterized in that the wear protection device is constructed as a ramp (26) in the basket shell.
7. Centrifuge, particularly a separator, according to one of the preceding claims, characterized in that the wear protection devices (12) consist of a wear-resistant material, such as steel or a hard metal or of a ceramic material or of a combination or a composite of these materials, or are coated with such a material.

8. Centrifuge, particularly a separator, according to one of the preceding claims, characterized in that the discharge nozzles (2) have discharge openings (10) oriented at an angle ($\alpha + \hat{\alpha}$) inclined with respect to the radial direction (R), and in that the angle ($\alpha + \hat{\alpha}$) between the radial direction (R) in the area of the discharge nozzles and the orientation of the discharge openings (10) is preferably equal to or smaller than 90° .

9. Centrifuge, particularly a separator, according to one of the preceding claims, characterized in that the orientation angle ($\alpha + \hat{\alpha}$) of the discharge openings (10) with respect to the radial direction (R) is between 70° and 85° .

10. Centrifuge, particularly a separator, according to one of the preceding claims, characterized in that the discharge openings (10) are arranged offset toward the interior by a distance (X) relative to the largest outer periphery or outside diameter of the centrifugal basket (28), and in that one recess (11) respectively is constructed as an extension of the discharge openings (10) in the basket shell (1), which receive the wear protection elements (12).

11. Centrifuge, particularly a separator, according to one of the preceding claims, characterized in that the wear protection elements (12) extend from the discharge openings (10) to the outer edge of the basket shell (1).

12. Centrifuge, particularly a separator, according to one of the preceding claims, characterized in that the wear protection elements (12) are constructed as plate-type bodies which are provided on their exterior side with a groove, particularly a channel (13), which are used as a discharge channel for a product phase exiting from the centrifugal basket (28) at an angle ($\alpha + \hat{\alpha}$) with respect to the radial direction.

13. Centrifuge, particularly a separator, according to one of the preceding claims, characterized in that the wear protection elements (12) are fastened to the basket shell (1) by means of screws (14) and/or mutually corresponding groove and tongue elements (15, 16) between the basket shell (1) and the wear protection element (12).

14. Centrifuge, particularly a separator, according to one of the preceding claims,

characterized in that the wear protection elements (12) are equipped with a base plate (17) whose outer edges, as tongues (16), can be pushed into two mutually opposite grooves (15) in the lateral base area of the recess (11).

15. Centrifuge, particularly a separator, according to one of the preceding claims, characterized in that the base of the channel (13) is situated by a distance (b) offset toward the interior with respect to the discharge opening (10) of the discharge nozzle (2) in the basket shell, and in that the channel (13) is oriented completely or in sections parallel or at an angle smaller than 30°, particularly smaller than 20°, with respect to the discharge opening (10).

16. Centrifuge, particularly a separator, according to one of the preceding claims, characterized in that the channel (13) changes into a ramp (20).

17. Centrifuge, particularly a separator, according to one of the preceding claims, characterized in that a first area (18) of the channel (13) adjoins the discharge opening (10) parallel to the second bore section (9), and in that a second area (19) of the channel (13) is inclined farther toward the radial direction.

18. Centrifuge, particularly a separator, according to one of the preceding claims, characterized in that the sleeve bodies (3) close off flush with the interior side of the basket shell (1).

19. Centrifuge, particularly a separator, according to one of the preceding claims, characterized in that the sleeve bodies (3) project slightly into the interior of the centrifugal basket (28).

20. Centrifuge, particularly a separator, according to one of the preceding claims, characterized in that, as break edges, the ramps (20) extend in the longitudinal direction of the channel (13) over less than half its length, particularly over a path of up to 10 mm, preferably over 1 to 10 mm.

21. Centrifuge, particularly a separator, according to one of the preceding claims, characterized in that the geometry of the transition between the ramp and the channel (13) is

curved or abrupt.

22. Centrifuge, particularly a separator, according to one of the preceding claims, characterized in that the geometry of the transition between the ramp (20, 26) and the channel (13) follows the geometry of a circle or an exponential function.

23. Centrifuge, particularly a separator, according to one of the preceding claims, characterized in that the inclination of the ramp (20, 26) with respect to the discharge opening of the solids increases away from the discharge opening (10).

24. Centrifuge, particularly a separator, according to one of the preceding claims, characterized in that the sleeve bodies (3) are each inserted in the radial direction of the centrifugal basket into radially extending bores (4) of the basket shell (1).

25. Centrifuge, particularly a separator, according to one of the preceding claims, characterized in that the sleeve bodies (13) have a bore (7) extending from the interior basket space (5) to the exterior basket space (6), which extend in a first bore section (8) with a first diameter D1 in the radial direction from the interior to the exterior and then change into a bore section (9) which is oriented at an angle with respect to the first bore section (8) and has a smaller diameter D2 relative to the first diameter.

26. Centrifuge, particularly a separator, according to one of the preceding claims, characterized in that the geometry of the wear protection elements (12) as an extension of the channel (13) is adapted to the curvature of the basket shell.

27. Centrifuge, particularly a separator, according to one of the preceding claims, characterized in that the wear protection elements, particularly their ramps (20), project radially toward the outside beyond the outer periphery or outside diameter of the basket shell (1) of the centrifugal basket (28).

28. Centrifuge, particularly a separator, according to one of the preceding claims, characterized in that the ramp is constructed as an undercut break edge.

29. Centrifuge, particularly a separator, according to one of the preceding claims,

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characterized in that the wear protection device is constructed as a ramp (27) at the nozzle body (2), which projects radially toward the outside beyond the basket shell.